What is claimed is:

1. A method of separating a body of brittle non-metallic material by thermal shock comprising: exposing the body to concentrated microwave radiation of an effective frequency and sufficient power density to heat at least one selected area of the body at a required separating propagation path to a required temperature in a selected time whereby the selected power density, and exposure time are sufficient to ensure that the selected area is heated to said temperature which is higher than the rest of the body material temperature such that the difference in said temperatures is large enough to create a thermal stress through the thickness of the selected area that results in the separating of the body material.

2. The method in accordance with claim 1 wherein the microwave irradiation frequency is between about 10GHz to about 1000GHz.

3. The method in accordance with claim 1 wherein the preferable microwave irradiation frequency is selected such that the skin layer for this frequency in the body material is approximately equal to its thickness.

4. The method in accordance with claim 1 wherein the selected heated area and its surrounds of the body of material are cooled during, and optionally prior and after, exposure to microwave.

5. The method in accordance with claim 4 wherein cold gas is blown on and around the body.

6. The method in accordance with claim 4 wherein the body is placed on a cold metal.

7. The method in accordance with claim 4 wherein the microwave is exposed through a cold, and transparent to microwave, material that is lying upon the body's irradiated surface.

8. The method in accordance with claim 7 wherein the transparent material is selected from the group consisting of oxide ceramics, nitride ceramics, quartz and diamond.

9. The method in accordance with claims 1 wherein the exposure to microwave radiation is carried out through a metal mask with an opening along the required propagation path.

10. The method in accordance with claim 9 wherein the required propagation path is exposed to microwave all at once.

11. The method in accordance with claim 1 wherein a surface of the body is scribed at an edge area of the propagation path.

12. The method in accordance with claim 1 wherein the source of microwave radiation is selected from the group consisting of gyrotron, klystron, magnetron, traveling wave tube, and backward wave oscillator.

13. The method in accordance with claim 1 wherein a microwave absorbent having a greater microwave absorption than the body material at a selected microwave irradiation frequency is applied along the required separating propagation path.

14. The method in accordance with claim 13 wherein the microwave absorbent is selected from the group consisting of semi-metals, carbides, nitrides, oxides, sulfides, silicides, boron, carbon, graphite and metals.

15. The method in accordance with claim 13 wherein the microwave irradiation frequency is selected such that the skin layer for this frequency in the absorbent is approximately equal to its thickness.

16. The method in accordance with claim 13 wherein the entire applied absorbent is exposed to microwave all at once.

17. The method in accordance with claim 13 wherein the selected heated area and its surrounds of the body of material are cooled during, and optionally prior and after, exposure to microwave.

18. The method in accordance with claim 13, wherein the exposure to microwave radiation is carried out through a metal mask with an opening along the required propagation path.

19. The method in accordance with claim 13 wherein a surface of the body is scribed at an edge area of the propagation path.

20. The method in accordance with claim 13 wherein the source of microwave radiation is selected from the group consisting of gyrotron, klystron, magnetron, traveling wave tube, and backward wave oscillator.

21. The method in accordance with claim 1 wherein the applied concentrated microwave radiation is elongated in the direction of the required separating propagation path.

22. The method in accordance with claim 21 wherein the concentrated microwave radiation has a different power density at its front and back.

23. The method in accordance with claim 22 wherein the concentrated microwave radiation length, power density at its front, and speed are selected to be sufficient to heat adhesive film in a laminated glass body to delaminating temperature before being followed by the step of separating of the laminated glass body.

24. The method in accordance with claim 1 wherein the concentrated microwave radiation is moved at least two times along the separating propagation path from beginning to end and back.

25. The method in accordance with claim 24 wherein the brittle non-metallic material being separated is laminated glass having an intermediate adhered film and the concentrated microwave radiation power density during at least the first move is selected to be sufficient to selectively heat the polymer adhesive film along the separating propagation path to delaminating temperature before being followed by the step of separating the laminated glass body.

26. The method in accordance with claim 1 wherein an additional heat source with a power distribution that is sharper than the applied concentrated microwave radiation is applied to said at least one selected area at one of the times selected from the group consisting of following the application of the concentrated microwave radiation, simultaneously with the application of the concentrated microwave radiation, and before the application of the concentrated microwave radiation.